Notice of Allowability	Application No.	Applicant(s)	
	10/689,329	IWAMOTO ET AL.	
	Examiner	Art Unit	
	Henry S. Hu	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *RCE of February 22, 2005*.

2. ☒ The allowed claim(s) is/are *1-8*.

3. ☒ The drawings filed on *20 October 2003* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1. This Office Action is in response to the RCE Amendment filed on February 22, 2005. With the RCE amendment, Claims 1-6 were rewritten in process format, while all three Claims 1 and 7-8 were amended to include the specific weight loss on exposure to reactive plasma as suggested by the examiner. **Claims 1-8 are now pending**. The examiner also **accepts Applicants' drawing in 3 sheets with 7 figures** filed on October 20, 2003 with this application. An action follows.

2. Claim rejections under **Final** Office Action filed on **December 7, 2004** are now removed for the reasons given in paragraphs 3-9 thereinafter.

Allowable Subject Matter

3. Claims 1-8 are allowed.

4. The following is an examiner's statement of reasons for allowance: The above Claims 1-8 are allowed over the closest references:

5. The limitation of amended parent **Claim 1** of present invention relates to **a process for protecting a surface of *an elastomer part*** *from degradation due to* ***exposure to reactive plasma***,

said process comprising imparting ***a magnetic flux density of at least 10 gauss to said surface*** *of said part prior to exposing said part to reactive plasma whereby* ***weight loss of said part is at least 20% less than*** *weight loss of a secondary identical elastomer part, not having a magnetic flux density of at least 10 gauss at its surface, exposed to reactive plasma under identical conditions.*

Parent ***Claim*** *7 relates to the same protective function of Claim 1 but with an elastomer in a slit valve door, while parent* ***Claim 8*** *relates to the same protective function of Claim 1 but with an elastomer in a pipe flange. See other limitations of dependent* ***Claims 2-6.***

6. In view of the Applicants' **RCE** amendment, all three parent **Claims 1 and 7-8** carry a combination of limitations as (A) protecting a surface of an elastomer part from degradation due to exposure to reactive plasma, said surface having a magnetic flux density of at least 10 gauss, and (B) the weight loss is at least 20% less than that of the control. It is noted that original Claims 1-6 were rewritten in process format. It is also noted that parent **Claim 7** relates to the same protective function of Claim 1 but with an elastomer in **a slit valve door**, while parent **Claim 8** relates to the same protective function of Claim 1 but with an elastomer in **a pipe flange**.

7. With respect to **103 rejections** over Hill/Yoden for **Claims 1-7**, none of the two references has taught or fairly suggested such a protection process comprising (A) imparting such a magnetic flux density onto the surface of an elastomer part and (B) after exposure of

reactive plasma such a specific weight loss in comparison with the control sample is obtained. As discussed earlier, **Hill** reference may has already disclosed a polymeric magnet composition having ultraviolet light and heat resistance but is silent of using a magnet flux density of higher than 10 gauss for resisting reactive plasma. Hill does not teach using reactive plasma at all. It is noted by this examiner that the function of UV and heat is quite different from plasma in view of reactivity and degradation.

Although the secondary reference **Yoden** has disclosed the modification of ferromagnetic powder by treatment of **oxygen plasma**, it is noted that such a **surface-modified/oxidized powder is thereby becoming plasma resistant**. **Yoden may have also disclosed using specific ferromagnetic metal powders having a saturation magnetic flux density at 3000 gauss**. In a very close examination, Yoden only discloses the modification on the surface of a ferromagnetic powder, and does not apply it to the surface of any elasomer article or part. Therefore, the motivation to link Hill and Yoden is lacking.

With respect to other **103 rejection** for Claim 8, the tertiary reference **Salmasi** may have taught that "plasma" is useful as a means to apply an EMC/RFI to the plastic meter body and cover including the claimed pipe flange. However, Salmasi does not fix the deficiency from Hill/Yoden.

8. In a close examination of the four references cited in the **search report for Applicants' PCT/US03/34110** in the IDS of 8-19-2004, the examiner confirms that **WO 98/50460 to**

Hampton (cited as X), **US 2002/084439 A1 to Hart et al.** (cited as X), **WO 00/74541 to Hiles** (cited as X) and **EP 1,331,652 A to Kassa et al.** (cited as P, X) all fail to teach or fairly suggest such a combination of limitations as (A) protecting a surface of an elastomer part from degradation due to exposure to reactive plasma, said surface having a magnetic flux density of at least 10 gauss, and (B) the weight loss is at least 20% less than that of the control. It is noted "652" has a publication of 7-30-2003.

Additionally, the present invention has shown in examples along with some comparative examples for making such a plasma protection process with elastomer surface having a magnetic flux density of at least 10 gauss (see pages 7-10 for **examples 1-4** along with its **Figures 1-4**). Therefore, all the above-mentioned references, in combination or alone, does not teach or fairly suggest the limitations of present invention.

9. After further examination and search, the examiner found the following prior art did not teach the claimed limitation:

USPG-PUB 2002/0084439 A1 to Hart et al. only discloses an extrudable magnet composition including (A) composite particles comprising a thermoplastic resin and a magnetic material, and (B) a surface additive (abstract, line 1-5; paragraphs 6 and 25). The surface additive (B) is selected from silicon dioxide particles and ferrite particles, **and is applied to the surface of the composite particles (A)**. However, Hart fails to teach or fairly suggest **using an**

elastomeric part having a magnet flux density of higher than 10 gauss. Therefore, the claimed magnetic elastomer part or process is not disclosed.

10. The two key issues, regarding (A) protecting a surface of an elastomer part from degradation due to exposure to reactive plasma, said surface having a magnetic flux density of at least 10 gauss, and (B) the weight loss is at least 20% less than that of the control, cannot be overcome by any or the combination of the above references, therefore, the present invention is novel.

11. As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the above references to render the present invention anticipated or obvious to one of the ordinary skill in the art. Therefore, the three independent and parent **Claims 1 and 7-8** are allowed for the reason listed above. Since the prior art of record fails to teach the present invention, the remaining pending **Claims 2-6** are passed to issue.

12. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Henry S. Hu whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization

where this application or proceeding is assigned is (703) 872-9306 for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Henry S. Hu

Patent Examiner, Art Unit 1713, USPTO

April 28, 2005

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